

## LIST OF ABBREVIATIONS

Abbreviations or symbols	Term
~	approximately
&	and
:	per
<	less than
≥	more than or equal to
%	percent
°C	degree(s) Celsius
β	beta
γ	gamma
κ	kappa
μg	microgram(s)
μl	microliter(s)
μm	micrometer(s)
5-FU	5-fluorouracil
A	adenine
Ab	antibody(-ies)
ABC	ATP-binding cassette
ABTS	2,2'-azino-bis(3-ethylbenzthiazoline-6-sulphonic acid)
ADCC	antibody dependent cell mediated cytotoxicity
Ag	antigen(s)
AIF	acidic isoferritin
ALP	alkaline phosphatase
Asn	asparagine
ATP	adenosine triphosphate
<i>B.</i>	<i>Bandicota</i>

### LIST OF ABBREVIATIONS (Cont.)

Abbreviations or symbols	Term
BCIP/NBT	bromochloroindolyl phosphate/nitro blue tetrazolium
BLAST	Basic Local Alignment Search Tool
bp	base pair(s)
BSA	bovine serum albumin
BUN	blood urea nitrogen
C	cytosine
C.	<i>Clostridium</i>
CI	chromosome I
CII	chromosome II
CBB	Coomassie Brilliant Blue
CD	cluster of differentiation
cDNA	complementary deoxyribonucleic acid
CDR/ <i>CDR</i>	protein/gene sequence of complementarity determining region
CEA	carcinoembryonic antigen
CFR	case-fatality rate
CL	constant domain
cm	centimeter(s)
cm <sup>3</sup>	cubic centimeter(s)
CMIR	cell-mediated immune response
CNBr	cyanogen bromide
CO <sub>2</sub>	carbon dioxide
CSF	cerebrospinal fluid
DCIP	2',6' dichlorophenol indophenol
DEPC	diethylpyrocarbonate
DFM	dark-field microscopic examination
DMF	dimethylformamide
DMSO	dimethyl sulfoxide

### LIST OF ABBREVIATIONS (Cont.)

Abbreviations or symbols	Term
DNA	deoxyribonucleic acid
dNTP	deoxynucleotide triphosphate
DTT	dithiothreitol
DW	distilled water
<i>E. coli</i>	<i>Escherichia coli</i>
EDTA	ethylenediaminetetraacetic acid
EF	periplasmic endoflagella
<i>e.g.</i>	<i>exempli gratia</i> , for example
ELISA	enzyme linked-immunosorbent assay
EMJH	Ellinghausen-McCullough-Johnson-Harris medium
ESR	erythrocyte sedimentation rate
<i>et al.</i>	<i>et alli</i>
EtBr	ethidium bromide
<i>EVH</i>	extended <i>VH</i> DNA sequence
<i>EVL</i>	extended <i>VL</i> DNA sequence
FAFLP	fluorescent amplified fragment length polymorphism
FcRn	neonatal Fc receptor
FR/FR	immunoglobulin framework protein/DNA
G	guanine
× <i>g</i>	relative centrifugal force (acceleration gravity)
<i>g</i>	gram(s)
GLP	glycolipoprotein
Gly	glycine
HA	hemagglutination
HACA	human anti-chimeric antibody
HAHA	human anti-humanized antibody

### LIST OF ABBREVIATIONS (Cont.)

Abbreviations or symbols	Term
HAMA	human anti-mouse antibody
HCl	hydrochloric acid
HD 50	hemolysis dose fifty percent point
HEPES	(N-[2-hydroxymethyl] piperazine-N'-[2-ethanesulfonic acid])
HIR	humoral immune response
HIV	human immunodeficiency virus
HLA	human leukocyte antigen
H <sub>2</sub> O <sub>2</sub>	hydrogen peroxide
hr	hour(s)
huscFv/ <i>huscFv</i>	humanized-murine single chain variable antibody protein/DNA
<i>i.e.</i>	<i>id est</i>
IFN	interferon
IgG	immunoglobulin G
IgM	immunoglobulin M
Igs	immunoglobulins
IHA	indirect hemagglutination assay
IL	interleukin
IM	inner membrane
i.m.	intra-mascular injection
i.p.	intra-peritoneal injection
i.v.	intra-venous injection
IPTG	isopropyl-1-thio-β-D-galactopyranoside
JHR	Jarisch Herxheimer reaction
K	potassium
kb	kilobase(s)
kDa	kilodalton(s)
kg	kilogram(s)

## LIST OF ABBREVIATIONS (Cont.)

Abbreviations or symbols	Term
kHz	kiloHertz
L	liter(s)
<i>L.</i>	<i>Leptospira</i>
LB	Luria Bertani medium
LD 50	lethal dose fifty percent point
Lig	Leptospiral immunoglobulin-like
LPF	liver function test
LPS	lipopolysaccharide
M	molar(s)
mA	milliAmpair(s)
MAb(s)	monoclonal antibody(-ies)
MAT	microscopic agglutination test
MFP	membrane fusion protein
mg	milligram(s)
MgCl <sub>2</sub>	magnesium chloride
ml	milliliter(s)
mm	millimeter(s)
mM	millimolar(s)
Mn	mononuclear cell
Mo	macrophage
MOMP	major outer membrane protein
<i>Mr</i>	relative molecular mass
mRNA	messenger RNA
muscFv/ <i>muscFv</i>	murine single chain variable antibody protein/DNA
N	normality
Na	sodium
NaCl	sodium chloride
Na <sub>2</sub> HPO <sub>4</sub>	disodium hydrogen phosphate

## LIST OF ABBREVIATIONS (Cont.)

<b>Abbreviations or symbols</b>	<b>Term</b>
NaH <sub>2</sub> PO <sub>4</sub>	sodium dihydrogen phosphate
NaN <sub>3</sub>	sodium azide
NaOH	sodium hydroxide
NC	nitrocellulose membrane
NCBI	National Center for Biotechnology Information
nd	not defined
ng	nanogram(s)
nm	nanometer(s)
NSS	normal saline solution
OD	optical density(-ies)
OMP	outer transmembrane protein
OMF	outer membrane factor
ORFs	open reading frames
PAb	polyclonal antibody(-ies)
PafAH	platelet-activating factor acetyl hydrolase
PBMCs	peripheral blood mononuclear cells
PBS	phosphate buffered saline
PBS-T	phosphate buffered saline with Tween-20
PCR	polymerase chain reaction
PEG	polyethylene glycol
PF	periplasmic flagella
PFGE	pulsed field gel electrophoresis
pfu	plaque forming unit(s)
PG	peptidoglycan
pg	picogram(s)
pH	negative logarithm of hydrogen ion activity
pmol/μl	picomole per microliter

### LIST OF ABBREVIATIONS (Cont.)

<b>Abbreviations or symbols</b>	<b>Term</b>
PPD	1,4- <i>p</i> -phenylenediamine-dihydrochloride
PS	polysaccharide
psi	pounds per square inch
<i>R.</i>	<i>Rattus</i>
RBC	red blood cell(s) or erythrocyte(s)
REA	restriction endonuclease assay
RFLP	restriction fragment length polymorphism
RNA	ribonucleic acid
<i>RNase</i>	ribonuclease
rpm	round(s) per minute
RPMI-1640	Rosewell Park Memorial Institute medium number 1640
RT-PCR	reverse transcriptase polymerase chain reaction
rRNA	ribosomal ribonucleic acid
SAGA-1	human sperm agglutination antigen-1
scFv	single chain variable fragment
S.D.	standard deviation
SDR	specific determining residues
SDS	sodium dodecyl sulfate
SDS-PAGE	sodium dodecyl-sulfate polyacrylamide gel electrophoresis
sec	second(s)
Ser	serine
SP	signal peptidase
SpH	sphingomyelinase C
spp.	species
SOBAG	SOB containing ampicillin and glucose



### LIST OF ABBREVIATIONS (Cont.)

Abbreviations or symbols	Term
SOBAG-N	SOB containing ampicillin, nalidixic acid and glucose
SOE-PCR	splice overlapped extension-polymerase chain reaction
T	thymine
$T_{1/2\alpha}$	equilibration phase
$T_{1/2\beta}$	elimination phase
<i>Taq</i>	<i>Thermus aquaticus</i>
TE	transitional epithelium
TEMED	N,N,N',N'-tetramethylethylenediamine
TES	Tris-EDTA-sucrose solution
TLR	toll-like receptor
TNF- $\alpha$	tumor necrosis factor alpha
Tris	Tris hydroxymethyl aminomethane
U	unit(s)
UDW	ultra-pure distilled water
USA	The United States of America
UV	ultra violet light
V	volt(s)
<i>VH</i>	variable sequence of immunoglobulin heavy chain
<i>VL</i>	variable sequence of immunoglobulin light chain
VNTR	variable number of tandem repeats
VWA	von willebrand factor type A domain
v/v	volume by volume
WB	Western blotting / Western blot analysis
WBC	white blood cells
WSSV	white spot syndrome virus



**LIST OF ABBREVIATIONS (Cont.)**

<b>Abbreviations or symbols</b>	<b>Term</b>
w/v	weight by volume
X-Gal	5- bromo-4-chloro-3-indolyl- $\beta$ -D- galactopyranoside
YT	yeast-tryptone medium
YT-A	yeast tryptone medium supplemented with ampicillin
YT-AK	yeast tryptone medium supplemented with ampicillin and kanamycin

สำนักหอสมุด